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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/511,860	10/18/2004	Peter Korner	55574-00007USPX	6636

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EXAMINER

FAULK, DEVONA E

ART UNIT	PAPER NUMBER
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2615

DATE MAILED: 11/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/511,860

Applicant(s)

KORNER, PETER

Examiner

Devona E. Faulk

Art Unit

2615

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 October 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 October 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>10/18/2004</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

The preliminary amendment filed on 10/18/2004 was received and entered.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-4,6 and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by Oda (US 5,923,766).

Regarding claim 1, Oda discloses a device for increasing a perceived bandwidth in an audio signal path with limited bandwidth (abstract, Figure 1) comprising:

an input terminal for connecting an audio signal (input , Figure 1);

an output terminal for connecting a speaker unit for generating an acoustic signal (Figure 1);

a splitter adapted to divide the audio signal path from the input terminal into two branches (Figure 1, splitter is the point at which the input signal is divided into two different paths), the branches comprising:

a first branch for passing a first part of the audio signal (Figure 1;

a second branch for processing a second part of the audio signal (Figure 1); and

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wherein the second branch comprises means for producing harmonics of the audio signal (Figure 1, Full wave rectifier and low pass filter no. 2; column 4, lines 53-59) ; and a combiner for adding the harmonics produced in the second branch to the first part of the audio signal in the first branch at the output terminal (adder 5, Figure 1); and wherein the means for producing harmonics comprises a harmonic generator for producing out-of-band harmonics (column 4, lines 53-59).

Regarding claim 2, Oda disclose wherein the means for producing harmonics further comprises a filter and an adjustable amplifier (low pass filter, 4 amplifier, Figure 1).

Regarding claim 3, Oda discloses claim 2, wherein the filter is arranged to separate an upper portion of a pass band as an input to the harmonic generator (filter 1, Figure 1).

Regarding claim 4, Oda discloses wherein the harmonic generator comprises a nonlinear circuit (full wave rectifier reads on the nonlinear circuit, Figure 1).

Regarding claim 6, Oda discloses wherein the means for producing harmonics is arranged to add second harmonics (full wave rectifier and low pass filter no. 2, Figure 1; column 4, lines 53-59).

Regarding claim 7, Oda discloses wherein the means for producing harmonics is arranged to add even harmonics (column 4, lines 53-59).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Oda (US 5,923,766) as applied to claim 2 above in view of Runton et al. (US 6,865,430).

Regarding claim 5, Oda discloses a harmonic generator. Oda fails to disclose that the harmonic generator comprises a digital signal processor DSP. Runton discloses a harmonic generator that comprises a digital signal processor (Figure 2, abstract; column 1, line 62-column 4, lines 17). It would have been obvious to modify Oda so that the harmonic generator comprises a digital signal processor in order to provide the capability of real-time processing and processing of digital signals.

5. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Oda (US 5,923,766) as applied to claim 1 above in view of Townsend et al. (US 6,606,388).

Regarding claim 11, Oda discloses a first branch. Oda fails to disclose that the first branch includes a delay or a phase shift. Townsend discloses a method and system for enhancing audio signals including a first branch comprising a delay (Figure

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2). It would have been obvious to modify Oda to include a delay in the first branch in order to ensure that the high frequency and low frequency signals stay aligned.

6. Claim 8-10,13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oda (US 5,923,766) as applied to claim 1 above in view of Case (US 6,023,513) in further view of Mousty et al. (US 2001/0034252).

Regarding claims 8 and 10, Oda teaches of an audio signal. Oda fails to disclose that the audio signal is a ring or speech signal. Case discloses wherein the audio signals can be from a telephonic audio signal including speech (column 1, lines 29-32 and 40-45). A telephonic audio signal can obviously be a speech signal or a ring. Mousty discloses a portable telephone wherein the input audio can be a ring or a GSM signal (paragraph 0002 and 0022). It would have been obvious to modify Oda as modified by Case by having the audio signal be a ring or speech signal such as GSM in order to be able to provide harmonic enhancement to various types of audio signals.

Regarding claim 9, Oda as modified by Case and Mousty discloses an audio signal and that the audio signal can be a telephonic audio signal that is a ring. Oda as modified by Case and Mousty fail to disclose that the audio signal is a polyphonic ring signal. It is known in the art that mobile phones can produce polyphonic ring tones. It would have been obvious to modify Oda as modified by Case so that the telephonic signal is a polyphonic ring signal in order to provide harmonic enhancement to various types of audio signals.

Regarding claim 13, Oda as modified by Case and Mousty discloses the device being used in a communication apparatus comprising: a polyphonic sound effect generator for producing the polyphonic ring signal. A polyphonic sound effect generator is implicit. All elements of claim 13 are comprehended by the rejection of claim 9.

Regarding claim 14, Oda as modified by Case and Mousty discloses that the device being used in a communication apparatus wherein the communication apparatus is a portable telephone, a pager, a communicator or an electronic organizer. All elements of claim 14 are comprehended by the rejection of claim 13.

7. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Oda (US 5,923,766) as applied to claim 1 above in view of Mousty et al. (US 2001/0034252).

Regarding claim 12, Oda discloses that the device being used in an apparatus for increasing the perceived bandwidth. Oda fails to disclose that the apparatus is a communicating device. . Mousty discloses a portable telephone wherein the input audio can be a ring or a GSM signal (paragraph 0002 and 0022). It would have been obvious to modify Oda by having the apparatus be a communicating device in order to provide a harmonic enhanced audio output to various types of audio signals.

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Devona E. Faulk whose telephone number is 571-272-7515. The examiner can normally be reached on 8 am - 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin can be reached on 571-272-7848.

The Art Unit location of your application in the USPTO has changed. To aid in correlating any papers for this application, all further correspondence regarding this application should be directed to Art Unit 2615. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DEF


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